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A New Subspecies of *Pterostichus hikosanus* (Coleoptera, Carabidae) from Honshu, Japan

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Abstract A new subspecies of *Pterostichus hikosanus* KASAHARA is described from the westernmost part of Honshu under the name *P. h. kaorui*.

What I am going to take up in this paper is the subject concerning the Honshu population of *Pterostichus hikosanus* KASAHARA (1994, p. 228). This pterostichine carabid beetle was originally described from Mt. Hiko-san in northern Kyushu. According to his study, three geographical races are recognized from the northeastern part of Kyushu, the central part of Kyushu and the westernmost part of Shikoku named *P. hikosanus hikosanus*, *P. h. higonis* (p. 232) and *P. h. kurosonis* (p. 233), respectively.

Recently, I was able to examine the Honshu population of this species through the courtesy of Mr. Kaoru TANAKA. I soon found that the diagnostic characteristics of this population are distinctive. Though the narrow straits between Honshu and Kyushu as well as between Honshu and Shikoku do not appear to form effective barriers against their dispersal, the diagnostic features of the Honshu population are as a whole indicative of its isolated status. In this paper, therefore, I have decided to describe a new subspecies under the name *P. h. kaorui*.

The abbreviations used herein are the same as those explained in other papers of mine.

I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the original manuscript of this paper. Hearty thanks are due to Mr. Kaoru TANAKA for his offer of materials. Without his help, I could not have undertaken this study.

My thanks are also due to Mr. Yoshiyuki ITÔ for supplying me with the specimens of *P. hikosanus kurosonis*.

Pterostichus hikosanus kaorui MORITA, subsp. nov.

(Figs.1 a–c, 2 a–d)

Diagnosis. Body rather small; eyes less convex; basal foveae of pronotum deep; hind angles of pronotum obtuse and with obtuse apices; elytral preapical emargination shallow; elytral intervals convex; elytral microsculpture strongly impressed; apex of

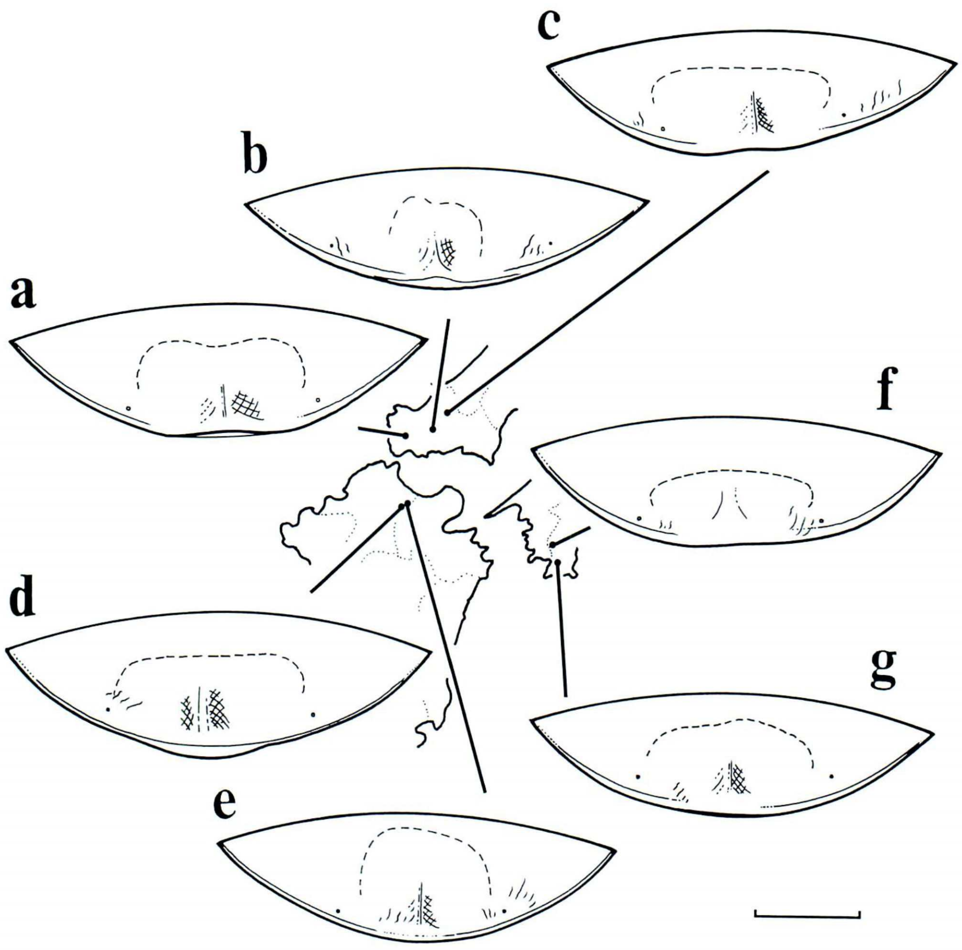

Fig. 1. Anal sternites in ♂ in *Pterostichus hikosanus*, showing variation; a–c, *Pterostichus hikosanus kaorui* MORITA, subsp. nov.; d, e, *P. h. hikosanus* KASAHARA; f, g, *P. h. kurosonis* KASAHARA. —— a, Specimen from Mt. Ge-san; b, specimen from Akiyoshi-dai; c, specimen from Mt. Tokusa-ga-mine; d, specimen from Mt. Hiko-san; e, specimen from Mt. Inu-ga-take; f, specimen from Kuroson; g, specimen from Mt. Shiraô-yama. Scale 1 mm.

anal sternite in ♂ not bordered and slightly warped downwards; aedeagus rather small and with a weak longitudinal carina and a small tumor; apical lobe of aedeagus short and rather wide.

Description. Length: 14.7–17.2 mm (from apical margin of clypeus to apices of elytra).

Body form as in *P. hikosanus kurosonis* KASAHARA.

Colour as in *P. h. kurosonis*, but the legs are darker. Head as in *P. h. kurosonis*, but the eyes are less convex; microsculpture more clearly impressed and consisting of iso-

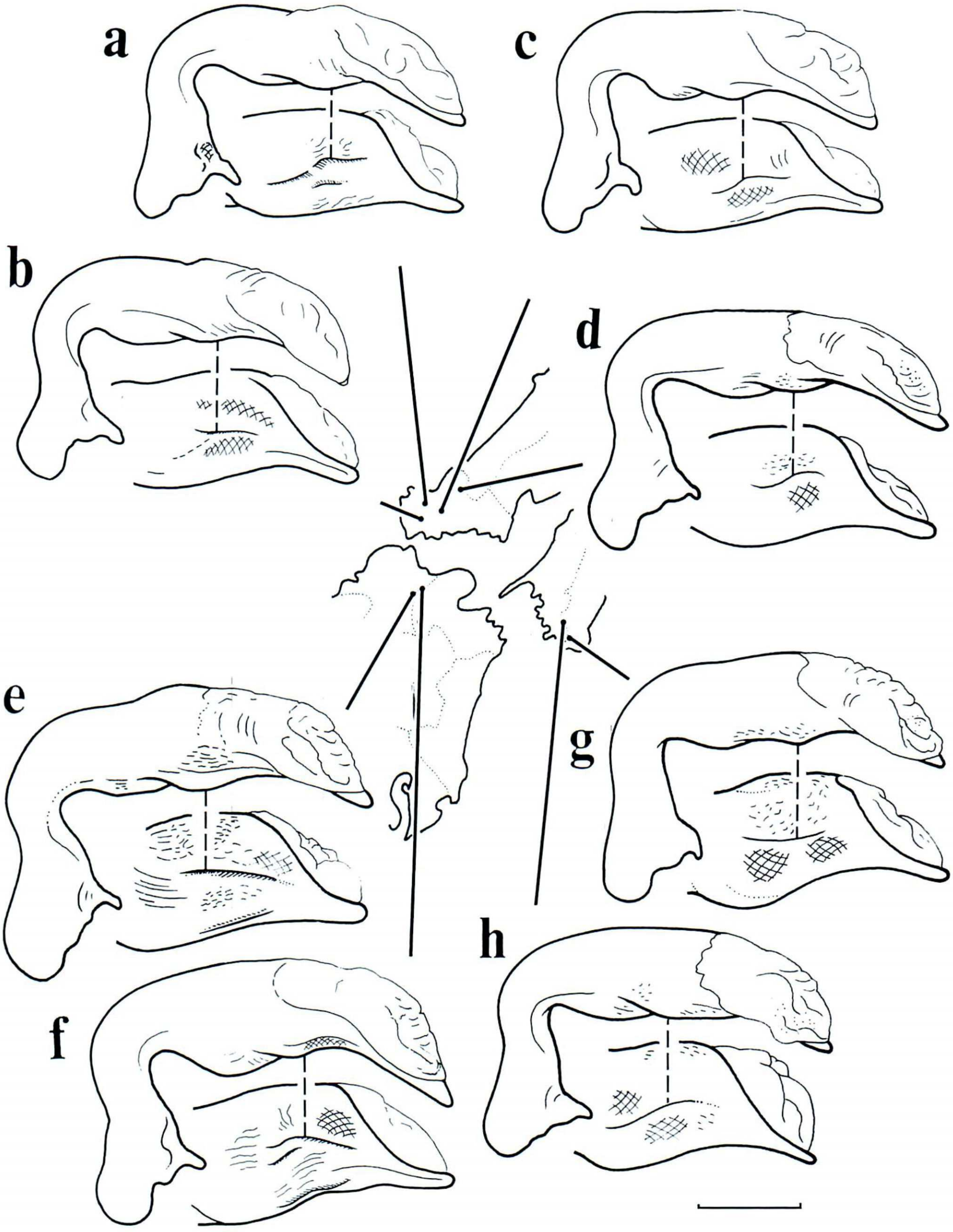

Fig. 2. Aedeagi in *Pterostichus hikosanus*, showing variation; a–d, *P. h. kaorui* MORITA, subsp. nov.; e, f, *P. h. hikosanus* KASAHARA; g, h, *P. h. kurosonis* KASAHARA. —— a, Specimen from Mt. Hanao-san; b, specimen from Mt. Ge-san; c, specimen from Akiyoshi-dai; d, specimen from Mt. Tokusa-ga-mine; e, specimen from Mt. Hiko-san; f, specimen from Mt. Inu-ga-take; g, specimen from Mt. Shiraô-yama; h, specimen from Kuroson. Scale 1 mm.

diametric meshes; PW/HW1.23–1.31 (M 1.27) in 10 ♂♂ from Mt. Tokusa-ga-mine; relative length of antennal segments as follows:— I : II : III : IV : V : VI : XI≒1 : 0.64 : 0.99 : 0.95 : 0.92 : 0.92 : 0.97 in 10 ♂♂ from Mt. Tokusa-ga-mine.

Pronotum as in *P. h. kurosonis*, but the basal foveae are deeper and the hind angles are wider; PW/PL 1.19–1.29 (M 1.25), PW/PA 1.27–1.33 (M 1.31), PW/PB 1.39–1.53 (M 1.47), PA/PB 1.06–1.20 (M 1.13) in 10 ♂♂ from Mt. Tokusa-ga-mine.

Elytra as in *P. h. kurosonis*, but the preapical sinuation is shallower and the intervals are more convex; microsculpture more strongly impressed and consisting of polygonal meshes; EW/PW 1.18–1.28 (M 1.24), EL/EW 1.63–1.77 (M 1.70), TL/HW 1.20–1.32 (M 1.29) in 10 ♂♂ from Mt. Tokusa-ga-mine.

Anal sternite in ♂ with a weak longitudinal median ridge and several oblique wrinkles at the sides; apex not bordered and slightly warped downwards.

Aedeagus rather small; apical lobe short and rather wide; longitudinal carina weak; sides of the carina slightly depressed and rough; tumor on the right side less convex in ventral view. Right paramere simply rounded at apex.

Standard ratios of body parts. The standard ratios of body parts of six females from Mt. Hanao-san are as follows: PW/HW 1.28–1.35 (M 1.31), PW/PL 1.24–1.38 (M 1.32), PW/PA 1.26–1.35 (M 1.31), PW/PB 1.49–1.60 (M 1.54), PA/PB 1.15–1.21 (M 1.18), EW/PW 1.18–1.23 (M 1.20), EL/EW 1.64–1.71 (M 1.68), TL/HW 1.12–1.17 (M 1.15); relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI≒1 : 0.67 : 1.02 : 1.08 : 1.01 : 1.02 : 0.91 in 6 ♀♀.

The ranges in three females from Akiyoshi-dai partially overlap those of Mt. Hanao-san, but the following ratios are slightly different: PW/HW 1.25–1.30 (M 1.27), EW/PW 1.19–1.26 (M 1.22).

A pair of the specimens from Mt. Ge-san have the following ratios: PW/PB 1.54, PA/PB 1.18, EW/PW 1.32, EL/EW 1.62 in ♂; PW/PB 1.47, PA/PB 1.10, EW/PW1.27, TL/HW 1.20 in ♀.

Variation in elytral chaetotaxy. Elytral interval III usually bears three dorsal pores on each side: the first pore on stria 3, the second and third on stria 2.

In 14 males from Mt. Tokusa-ga-mine, the pores are rather stable in the number and position: the first pore at 1/5–3/10, second at 2/5–1/2, third at 3/4–4/5 from base, respectively. One male from the mountain has an additional pore on the left elytron: it is located at basal 3/5 and joining stria 2.

In seven females from Mt. Hanao-san, the pores are located at basal 1/5–3/10, 3/7–3/5, and 7/10–4/5 of the elytra, respectively. Similar variation is also found in other localities.

The Akiyoshi-dai population shows aberrancy in elytral chaetotaxy. Of the four females, one has five pores on the left and four ones on the right: the first pores joining stria 3, the remaining seven joining stria 2. The other specimen has four pores on the left elytron and three ones on the right: the second pore on the left elytron is located at basal 2/5 and on interval III.

Variation of aedeagus. The male genitalia were examined in 15 specimens.

Variation of aedeagi from four populations is shown in Figs. 2. In one male from Mt. Hanao-san, the aedeagus has an additional longitudinal carina at the right side of the ordinary one.

Type series. Holotype: ♂, Mt. Tokusa-ga-mine, Atô-chô, 9–V–1999, K. Tanaka leg. (NSMT). Paratypes: 1 ♂, Akiyoshi-dai, Mitô-chô, 14–VIII–1988, K. Tanaka leg.; 1 ♂, same locality, 1–X–1989, K. Tanaka leg.; 1 ♀, same locality, 26–V–1991, K. Tanaka leg.; 1 ♂, 1 ♀, same locality, 27–X–1991, K. Tanaka leg.; 1 ♂, 2 ♀♀, same locality, 4–V–1994, K. Tanaka leg.; 1 ♂, same locality, 8–IX–1999, K. Tanaka leg.; 1 ♂, same locality, 2–X–1999, K. Tanaka leg.; 3 ♂♂, 7 ♀♀, Mt. Hanao-san, Nagato-shi, 19–IX–1998, K. Tanaka leg.; 13 ♂♂, Mt. Tokusa-ga-mine, 9–V–1999, K. Tanaka leg.; 1 ♂, 1 ♀, Mt. Ge-san, Toyota-chô, 23–IX–2000, K. Tanaka leg.

Range. Yamaguchi Prefecture, West Japan.

Notes. The diagnostic characters of this new subspecies are presented at the beginning of the descriptive part, and a problem involved in identification is shown below.

Another undetermined species belonging to the same lineage of *P. hikosanus* occurs on Mt. Jakuchi-san in the eastern part of Yamaguchi Prefecture. *Pterostichus hikosanus* is distinguished from this undetermined species by the following points: 1) genae more convex, 2) pronotum narrower, 3) hind angles of pronotum obtuse and with obtuse apices, 4) basal foveae of pronotum shallower, 5) elytra elongate, 6) elytral microsculpture less coarse, 7) elytral striae almost smooth, and 8) aedeagus not smooth on the ventral side, and with a small tumor and short apical lobe.

I am pleased to name this subspecies after Mr. Kaoru Tanaka, who has contributed so much to the clarification of the beetle fauna of Yamaguchi Prefecture.

要　　約

森田誠司：ヒコサンナガゴミムシ *Pterostichus hikosanus* Kasaharaの1新亜種. —— 福岡県英彦山を基産地として記載されたヒコサンナガゴミムシ *Pterostichus hikosanus* Kasaharaの1新亜種を，山口県内で採集された標本をもとに記載した．この新亜種は, 基亜種より四国から知られている亜種*P. h. kurosonis* Kasaharaに近く，おもに，雄腹端節, 陰茎の下面の構造などで，識別される．また，山口県東部には，同系統の未同定種が分布するが，外部形態（おもに，前胸背板の後角）ならびに雄交尾器などで，識別される．

Reference

Kasahara, S., 1994. Three new taxa of *Pterostichus* (Coleoptera, Carabidae) from Kyushu and Shikoku, Southwest Japan. *Elytra*, *Tokyo*, **22** : 227–237.